

Homework Review

State The Degree of the function

$$f(x) = (x+5)(x-6) + 4$$

$$f(x) = x^2 - 6x + 5x - 30 + 4$$

$$= x^2 - x - 26$$

Degree = 2
Quadratic
2nd Diff

$$f(x) = 3x - 6$$

= Degree 1

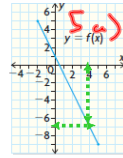
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5. Evaluate $f(4)$ for each of the following.

a) $f = \{(1, 5), (3, 2), (4, 1), (6, 2)\}$ d)

x	2	6	8
f(x)	4	8	12

c) $f(x) = 3x^2 - 2x + 1$



$x \ y \quad x \ f(x)$

$$f(x) = 3x^2 - 2x + 1$$

$$f(4) = 3(4)^2 - 2(4) + 1$$

$$f(4) = 41$$

$x = 2x$

$$f(x) = 3x^2 - 2x + 1$$

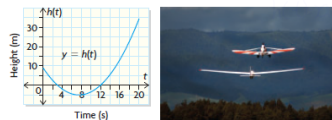
$$f(2x) = 3(2x)^2 - 2(2x) + 1$$

$$f(2x) = 3(4x^2) - 4x + 1$$

$$f(2x) = 12x^2 - 4x + 1$$

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equation representing the flight is $h(t) = \frac{1}{4}(t-3)(t-12)$, where time, t , is measured in seconds.



- What does $h(0)$ represent?
- What does $h(3)$ represent?
- When is the glider at its lowest point? What is the vertical distance between the top of the tower and the glider at this time?

$$h(t) = \frac{1}{4}(t-3)(t-12)$$

$$h(0) = \frac{1}{4}(0-3)(0-12)$$

$$= \frac{1}{4}(-3)(-12)$$

$$= \frac{1}{4}(+36)$$

$$= \frac{36}{4}$$

$$h(0) = 9$$

$$h(3) = 0$$

$$h(12) = 0$$

$$h(0) - h(9) = 9 - (-5)$$

$$= 14m$$

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$$12. f(x) = 2(x-3)^2 - 1$$

a) $f(0)$

$$f(0) = 2(0-3)^2 - 1$$

$$f(0) = 2(-3)^2 - 1$$

$$f(0) = 2(9) - 1$$

$$f(0) = 18 - 1$$

$$f(0) = 17$$

b) $f(0) = y \text{ int}$

c) $f(x) = 6$

$$f(1) = 6$$

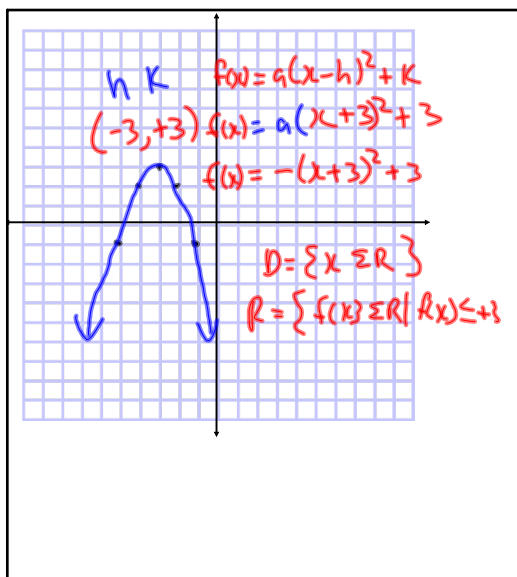
$$f(5) = 6$$

d) $f(3) = 4$ $f(3) = -2$
Not a solution

$$D = \{x \in \mathbb{R}\}$$

$$R = \{f(x) \in \mathbb{R} \mid -2 \leq f(x)\}$$

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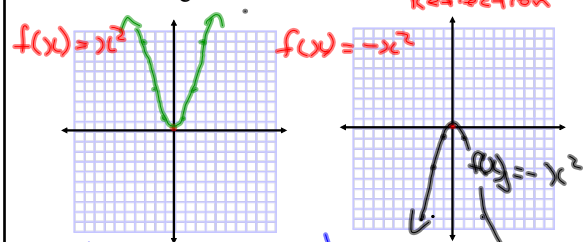


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Graphing Quadratic Functions

Using Transformations

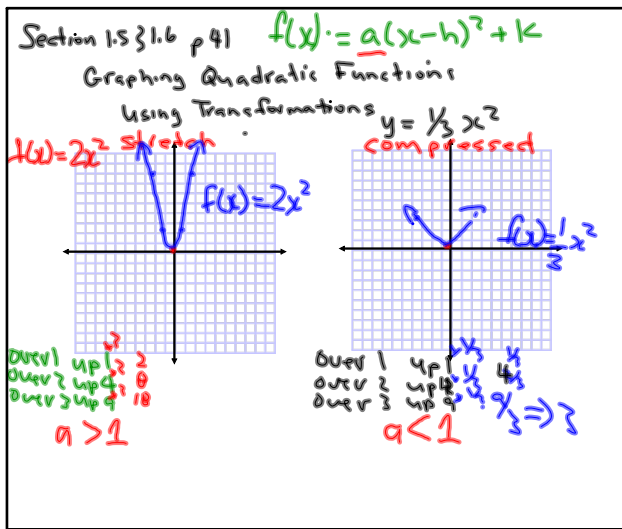


Over 1 up 1
Over 2 up 4
Over 3 up 9
Over 4 up 16

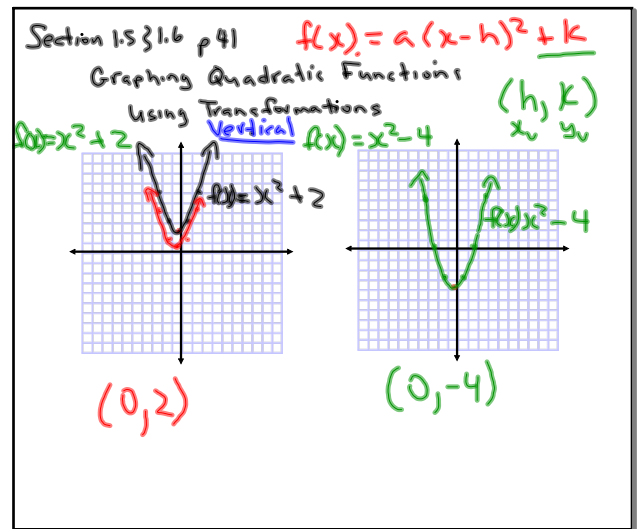
Vertex Form

$$f(x) = a(x-h)^2 + k$$

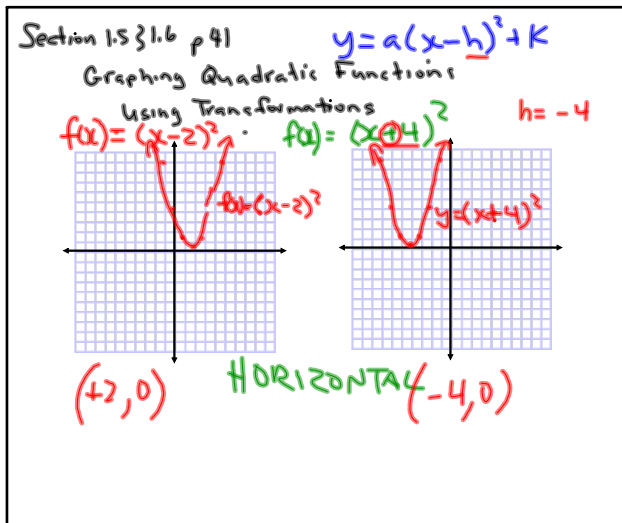
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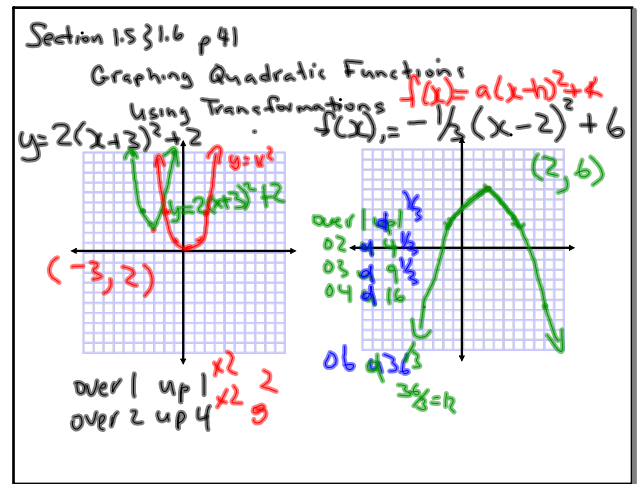
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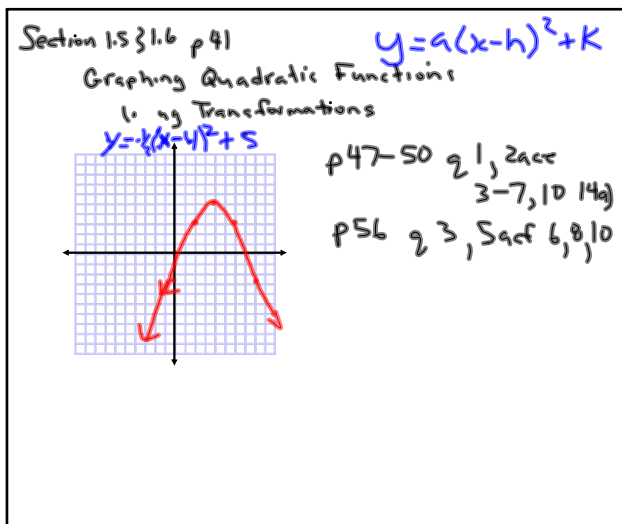
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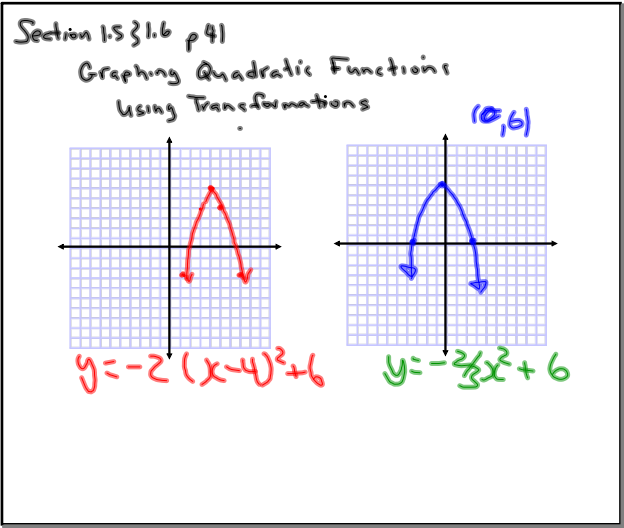
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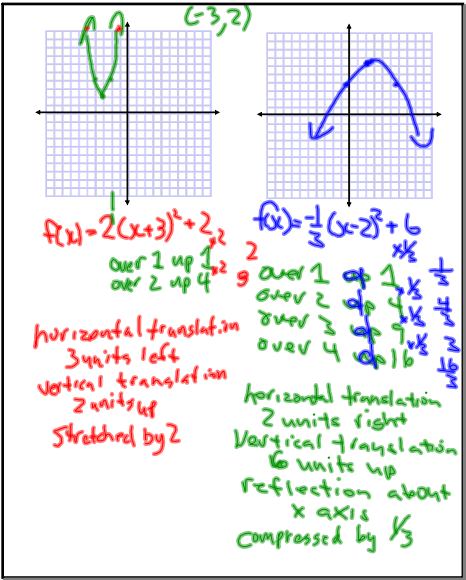
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10. A baseball is hit from a height of 1 m. The height of the ball is modelled by the function $h(t) = -5t^2 + 10t + 1$, where t is time in seconds.
- Graph the function for reasonable values of t .
 - Explain why the values you chose for t in part (a) are reasonable.
 - What is the maximum height of the ball?
 - At what time does the ball reach the maximum height?
 - For how many seconds is the ball in the air?
 - For how many seconds is the ball higher than 10 m?
 - Express the domain and range in set notation.

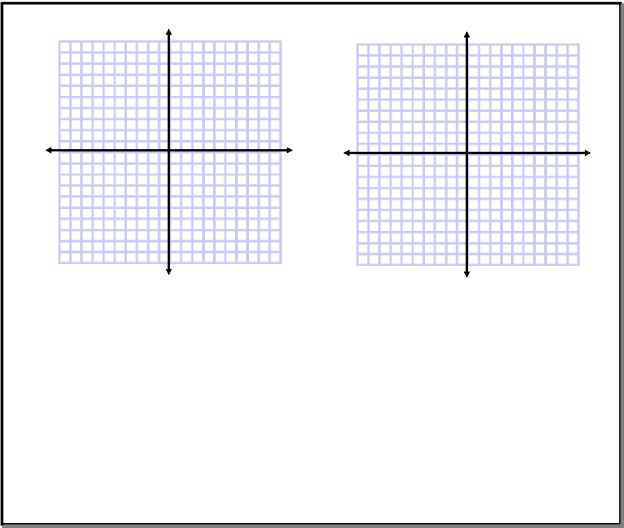
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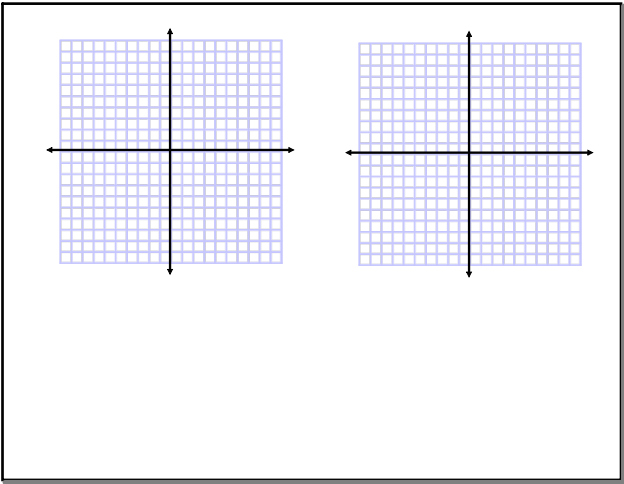
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